

Application No.: 09/997,898

Docket No.: H0610.0044/P044

REMARKS

Claims 1, 2, 4-11, and 13-18 are presently pending. Claims 1-4, 6-8, and 10-18 have been amended. Claims 3 and 12 have been cancelled.

The specification, claims and Abstract have been amended to address the formal concerns and objections set forth in the Office Action.

Claims 2, 3, and 7-9 have been rejected under 35 U.S.C. § 112, second paragraph, as indefinite. The claims have been amended to address the indefiniteness concerns raised in the Office Action. Reconsideration is respectfully requested.

The drawing has been objected to under 37 C.F.R. 1.83(a) on the basis that it does not show the cooling means recited in claims 1, 4 and 5. In the sole drawing of the application, reference numbers 26, 28, 30 and 32 indicate electrical strips, which may heating or cooling strips, and would have the same depiction in either case. The specification has been amended at page 4 to indicate that the strips can be heating or cooling strips. No new matter has been entered, because the feature of cooling strips was previously recited in the claims. Reconsideration is respectfully requested.

The drawing has also been objected to under 37 C.F.R. 1.84(p)(5) because it does not include the reference numeral "2" mentioned in the specification. The specification has been amended to delete the mention of reference numeral "2."

Claims 1, 2, 4-11, and 13-18 have been rejected under 35 U.S.C. §102(b) as being anticipated by Northrup et al. (WO 98/50147). Reconsideration is respectfully requested.

Northrup discloses a micro fabricated reaction chamber in the form of a planar device (block) 11 provided with reaction chamber 12, 13, 14 adapted to hold

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material to be tested. Peltier heat pumps 15 and 16 are arranged adjacent opposite sides of block 11 (see Fig. 1).

The claimed invention relates to a compact reactor in the form of a metallic block or ingot with a plurality of reaction passages extending in one direction through the block, so each of the reaction passages is surrounded on its complete outer surface by the metallic block, i.e., the passages are drilled through the block. The passages are provided with inlet channels for a feedstock in perpendicular direction to the reaction passages at the top of the reactor and with outlet channels in perpendicular direction to the passages at the bottom of the reactor. The inlet and outlet channels are similar to the reaction passages surrounded on their complete surface by the metallic block by drilling the channels through the block. Heating means in the form of tubes or electrical heating strips are provided within the outer surface or grooves in the surface of the block. Supply lines or "inlet channels for distributing and supplying feedstock" into reaction chambers are neither mentioned nor shown by the Northrup reaction chambers 12, 13, 14.

Claim 1 has been amended to include the features of cancelled dependent claim 3 and now recites that the "inlet and outlet passages ... [are] substantially perpendicular to the reaction passages." As the Examiner notes in the Office Action at page 7, Northrup does not disclose this feature of the invention. Therefore, the rejection of claim 1 under 35 U.S.C. §102(b) should be withdrawn. Since claims 2, 4-11, and 13-18 depend directly from claim 1, the 35 U.S.C. §102(b) rejection of these claims should also be withdrawn.

Claims 1, 2, 4-11, and 13-18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Northrup et al. (WO 98/50147) in view of Alagy et al. (US 4,973,777). Reconsideration is respectfully requested.

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The subject matter of amended claim 1, which includes the limitations included in cancelled claim 3, would not have been obvious over Northrup and Alagy, whether considered alone or in combination. Specifically, the Office Action fails to establish a *prima facie* case of obviousness. Courts have generally recognized that a showing of a *prima facie* case of obviousness necessitates three requirements: (i) some suggestion or motivation, either in the references themselves or in the knowledge of a person of ordinary skill in the art, to modify the reference or combine the reference teachings; (ii) a reasonable expectation of success; and (iii) the prior art references must teach or suggest all claim limitations. See e.g., In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999); In re Rouffet, 149 F.3d 1350, 1355 (Fed. Cir. 1998); Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573 (Fed. Cir. 1996).

Alagy et al. U.S. Patent No. 4,973,777 discloses a reactor made of a plurality of ceramic plates (col. 7, lines 7-9) with channels between the blocks grouped in rows (col. 7, lines 12-15). Feedstock is supplied to the channels through a distributor 2 at the top of the reactor begin provided with an inlet opening 3 (see Fig. 1A). The ceramic plates 4 are parallel to each other and are spaced apart and form rows of channels 4 (col. 9, lines 6-10). Heating means 5 are provided within the parallel blocks.

Northrup, as described above, teaches a micro fabricated reaction chamber in the form of a planar device (block) 11 provided with reaction chamber 12, 13, 14 adapted to hold material to be tested. Peltier heat pumps 15 and 16 are arranged adjacent opposite sides of block 11 (see Fig. 1). Supply lines or "inlet channels for distributing and supplying feedstock" to reaction chambers are neither mentioned nor shown in Northrup.

The above-known reaction devices and the claimed invention differ significantly in the arrangement of the inlet and outlet channels which by the known

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devices are in the form of space at the top of the reactor so that the feedstock is supplied to the reaction spaces in substantially the same direction as the feed flows through the reaction spaces (see Fig. 1A in Alagy), whereas in the present invention feed is distributed and introduced into the reaction space through a supply/inlet channel being arranged within the reactor block in perpendicular direction to the reaction passages. The advantage of such a construction is a much more compact design of the reaction unit and prewarming or precooling of the feed when passing through the supply channel arranged within the heated or cooled reactor block.

Amended claim 1 recites that the "inlet and outlet passages ... [are] substantially perpendicular to the reaction passages." Neither Northrup nor Alagy disclose or suggest such a feature; therefore, the combination of these references would not lead one skilled in the art to the present invention, and claim 1 should be allowed. For the same reasons, claims 2, 4-11, and 13-18, which depend from claim 1, should also be allowed.

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In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

By 

Stephen A. Soffen

Registration No.: 31,063

DICKSTEIN SHAPIRO MORIN &

OSHINSKY LLP

2101 L Street NW

Washington, DC 20037-1526

(202) 785-9700

Attorney for Applicant